

## REMARKS

### Status of claims

Applicants thank the Examiner for the consideration given to the present application. Claims 1 and 3-50 were pending in the present application. Claims 37-50 were withdrawn due to a restriction requirement. Claims 11, 15, and 16 have been amended to correct some informalities, per examiner suggestion. As a result of this amendment, claims 1 and 3-36 are pending. No new matter has been added to the claims. Reexamination and reconsideration are requested in light of the accompanying amendments and remarks.

### Specification Objections

As shown in the Amendments to the Specification, Applicants have updated the status of the CROSS-REFERENCE section on page 1 of the specification as requested by the examiner. Thus, the objection is respectfully traversed, and reconsideration is requested.

### Claim Objections

Claims 11, 15 and 16 have been objected to because of the following informalities: "water r" should read --water--. Accordingly, Applicants have amended claims 11, 15 and 16 to correct the informalities and thus respectfully request the objection to such claims be withdrawn.

### Rejections Under 35 U.S.C. §103

Claims 1-3, 5-7, 12-14, 16-17, 19-22, and 26-27 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Clack (US 4,997,553) in view of Birdsong et al. (US 5,131,277), Gadkaree et al (US 6,228,803) and Koslow (US 6,630,016). Claim 4 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Clack in view Birdsong et al, Gadkaree et al and Koslow as applied to claim 1 above, and further in view of Sipos et al. (US 5,371,221). Claim 8 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Clack in view of Birdsong et al, Gadkaree et al and Koslow as applied to claim 1 above, and further in view of Baerg et al. (US 3,670,892). Claims 9-10 and 24 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Clack in view of Birdsong et al, Gadkaree et al and Koslow as

applied to claims 1 and 19 above, and further in view of Deines et al. (US 4,147,631) and Renn (US 3,268,444). Claims 11 and 25 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Clack in view of Birdsong et al, Gadkaree et al and Koslow as applied to claims 1 and 19 above, and further in view of Deines et al. and Scavuzzo et al. (US 3,333,703). Claim 15 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Clack in view of Birdsong et al, Gadkaree et al and Koslow as applied to claim 1 above, and further in view of Kuh et al. (US 4,681,677). Claim 18 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Clack in view of Birdsong et al, Gadkaree et al and Koslow as applied to claim 1 above, and further in view of Cranshaw (US 6,117,319). Claim 23 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Clack in view of Birdsong et al, Gadkaree et al and Koslow as applied to claim 19 above, and further in view of Coates et al. (US 5,707,518). Claim 28 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Clack in view of Birdsong et al, Gadkaree et al and Koslow as applied to claim 19 above, and further in view of Wadsworth et al. (US 6,123,837).

Claims 29-31 and 35-36 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Clack in view of Birdsong et al, Gadkaree et al, Koslow, Deines et al. and Renn. Claim 33 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Clack in view of Birdsong et al, Gadkaree et al, Koslow, Deines et al and Renn as applied to claim 29 above, and further in view of Scavuzzo et al. Claims 32 and 34 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Clack in view of Birdsong et al, Gadkaree et al, Koslow, Deines et al and Renn as applied to claim 29 above, and further in view of Coates et al. These rejections are respectfully traversed.

In order to establish a prima facie case of obviousness under §103, the Examiner has the burden of showing, by reasoning or evidence, that: 1) there is some suggestion or motivation, either in the references themselves or in the knowledge available in the art, to modify that reference's teachings; 2) there is a reasonable expectation on the part of one of ordinary skill in the art that the modification or combination has a reasonable expectation of success; and 3) the prior art references (or references when combined) teach or suggest all the claim limitations. *See* MPEP 2143.

Independent claim 1 is directed to a water filter device comprising, *inter alia*, a low-pressure water filter comprising a water filter material, wherein said water filter material comprises mesoporous activated carbon filter particles and a Filter Bacteria Log Removal of greater than about 2 logs. Independent claims 19 and 29 comprise the above limitation of claim 1, and also recite a Filter Viruses Log Removal of greater than about 1 log.

As defined in the specification, "mesoporous activated carbon particles" refers to an activated carbon filter particle wherein the sum of the mesopore and macropore volumes may be greater than 0.12 milliliters/gram (herein "mL/g"). (col. 7, lines 26-28). A "mesopore" refers to an intra-particle pore having a width or diameter between 20 and 500 angstroms. (col. 7, lines 20-22). A "macropore" refers to an intra-particle pore having a width or diameter greater than 500 angstroms. (col. 7, lines 18-19). Furthermore, the "sum of the mesopore and macropore volumes" is equal to the difference between the total pore volume and the micropore volume. (col. 8, line 30 - col. 9, lines 1-3). A "micropore" refers to an intra-particle pore having a width or diameter less than 20 angstroms. (col. 8, lines 12-13). Consolidating the definitional components, mesoporous activated carbon particles refers to a water filter having a blend of macropores, mesopores, and/or micropores, wherein the blend is configured such that sum of the mesopore and macropore volumes may be greater than 0.12 milliliters/gram.

As defined in the specification, "Filter Bacteria Log Removal (F-BLR)" refers to the bacteria removal capability of the filter after the flow of the first 2,000 filter material pore volumes. (Col. 6, lines 6-8). "Filter Viruses Log Removal (F-VLR)" refers to the virus removal capability of the filter after the flow of the first 2,000 filter material pore volumes. (Col. 7, lines 1-3).

None of the references, singularly or in combination, teach or suggest, *inter alia*, these claim elements. As the Examiner acknowledges, Clack's storage and dispensing apparatus fails to disclose a water filter comprising mesoporous activated carbon particles an F-BLR of greater than 2 logs or a F-VLR of greater than 1 about log.

Gadkaree's teachings fail to cure the above noted deficiencies of Clack. Gadkaree fails to teach a blend of macropores, mesopores, and micropores. The Examiner may cite Gadkaree for teaching macropores having a pore size of above 500 angstroms, as well as mesopores having a pore size of about between 20 and 500 angstroms; however, Gadkaree fails to teach a blend of

macropores, mesopores, and micropores. Gadkaree briefly mentions micropores in the Background; however, Gadkaree emphasizes its blend of various pore sizes should *all be above 30 angstroms*. (Col. 1, lines 14-15). Consequently, Gadkaree fails to teach or suggest a blend of macropores, mesopores, and micropores as required by the claims. By failing to teach the claimed structure i.e. a blend of macropores, mesopores, and micropores, Gadkaree also fails to teach or suggest that the sum of macropore and mesopore volumes may be greater than 0.12 milliliters/gram, because, as illustrated in the definitions above, the amount of micropores impacts this calculated sum. Failing to teach this claimed structure also results in Gadkaree's failure to teach or suggest a filter capable of producing an F-BLR of greater than 2 logs or a F-VLR of greater than 1 about log. Since the recited structure and the Gadkaree structure differ, the properties of these structures will also differ; therefore, the F-BLR and F-VLR values are not inherent as the examiner asserts.

Koslow fails to cure the above noted deficiencies of Clack and Gadkaree. The Examiner cites Koslow as teaching a "microporous structure"; however, Koslow fails to teach intra-particle pore sizes or pore volumes. According to Koslow, "microporous structure" comprises a mean flow path of less than 2 microns (20,000 angstroms). (Col 3. lines 42-44). Mean flow path constitutes a property completely unrelated to the recited properties of the present claims. Koslow's teaching of mean flow path of less than about 2 microns is directed to the spacing between the active particles, and not the volume of the pores within a particle (intra-particle) as in the present specification. (col. 2, lines 1-14). Koslow provides no teaching or suggestion of intra-particle pore sizes or pore volumes, and further provides no teaching or suggestion of having a blend of various pore sizes. Koslow discloses a mean flow path values of 20,000 angstroms, a value which is *several magnitudes greater* than the mesopores, macropores, and micropores of the present invention. Consequently, Koslow's teachings provide no guidance to one of ordinary skill in the art regarding the pore sizes to be used in its filter, thus Koslow fails to teach micropores as the examiner asserts. Accordingly, Koslow fails to teach or suggest a blend of macropores, mesopores, and micropores, thereby failing to teach Applicants' claimed mesoporous activated carbon filter particles, which are defined as having a sum of mesopore and macropore volume of greater than 0.12 mL/g. Similar to Gadkaree, by failing to teach this claimed filter structure, Koslow does not teach or suggest a filter capable of producing an F-BLR

of greater than 2 logs or a F-VLR of greater than 1 about log. As a result, Clack, Gadkaree, and Koslow, either singularly or in combination, fail to teach or suggest all elements of the claims.

None of the additional cited references, Birdsong, Sipos, Baerg, Deines, Renn, Scavuzzo. Kuh, Cranshaw, Coates, and Wadworth, either singularly or in combination teach or suggest all elements of the claims. Accordingly, the rejections under 35 U.S.C. §103 are respectfully traversed, and reconsideration is respectfully requested.

#### CONCLUSION

Applicants respectfully submit that the present application is in condition for allowance. The Examiner is encouraged to contact the undersigned to resolve efficiently any formal matters or to discuss any aspects of the application or of this response. Otherwise, early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,  
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